

AQUATEC SOLAR SURFACE PUMPS

Aquatec SDS surface pumps are the highest quality low-voltage DC diaphragm pumps available.

50, 100 or 150 ft Lift at up to 5 GPM



SIZING YOUR SYSTEM

Sizing a solar pumping system is easy:

1. Determine the required lift or *head*. This is the *vertical* distance from the well water surface (the *Static Level*), to the delivery point. Add additional head for pipe friction (typically 10 ft or less) and delivery pressure (about 2 ft per PSI).
2. Determine the required water quantity. As a guide, allow 0.5 to 1 gallons per day (GPD) per 10 square feet of garden, 10 – 20 GPD for a non-dairy cow or horse, and 100 GPD per person for a cabin or house.

The following tables show estimated solar water deliver for various heads and sizes of photovoltaic (PV) array.

These estimates are based on five equivalent hours of sun per day which is typical of summer in the Northern USA. For southern and very sunny regions, the pumps will deliver about 30% more.

Water delivery will be proportional to the amount of sun each day. As water requirements increase with the amount of sunshine, this generally works well, however if you have a special use, or need to pump in winter, please contact Solar-Stream for sizing information.

GPD: 50 ft		PV Array		
Head	50W	80W	2 x 50W	2 x 80W
5	3200	3400	3500	3500
10	2740	3160	3270	3490
20	1520	2435	2760	3200
30	950	1600	2020	2840
40	642	1130	1450	2400
50	431	825	1090	1860

GPD:100 foot		PV Array		
Head	50W	80W	2 x 50W	2 x 80W
10	2050	2170	2210	2210
20	1720	1995	2060	2200
40	940	1515	1730	2010
50	730	1200	1515	1890
60	585	985	1250	1780
80	385	690	890	1490
100	250	500	660	1150

GPD: 150 foot		PV Array		
Head	50W	80W	2 x 50W	2 x 80W
10	1300	1590	1660	1750
25	810	1190	1400	1625
50	460	710	880	1330
75	305	490	610	960
100	220	365	460	735

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125	165	280	360	590
150	124	220	290	480

To determine the size of PV array needed to delivery a certain gallons per minute (GPM) for a given head, use the following tables. Note that these assume direct sun on the PV modules (i.e. the middle of the day) – the pump will deliver less during morning and afternoon time.





PV 50 ft		GPM				
Head	0.5	1	2	3	4	5
5	50W	50W	50W	50W	50W	50W
10	50W	50W	50W	50W	50W	50W
20	50W	50W	50W	50W	50W	80W
30	50W	50W	50W	50W	80W	80W
40	50W	50W	50W	80W	80W	2 x 50W
50	50W	50W	80W	80W	2 x 50W	2 x 80W

PV 100 foot		GPM		
Head	0.5	1	2	3
10	50W	50W	50W	50W
20	50W	50W	50W	50W
40	50W	50W	50W	50W
50	50W	50W	50W	80W
60	50W	50W	50W	80W
80	50W	50W	80W	2 x 50W
100	50W	50W	2 x 50W	2 x 80W

PV 150 foot		GPM	
Head	0.5	1	1.1
10	50W	50W	50W
20	50W	50W	50W
40	50W	50W	50W
60	50W	50W	50W
80	50W	80W	80W
100	50W	80W	80W
120	50W	80W	2 x 50W
140	50W	2 x 50W	2 x 50W
150	50W	2 x 50W	2 x 80W

ASSEMBLING YOUR SYSTEM

A solar water pumping system consists of the following components:

Solar Panels (PV modules)	Pump Controller	Pump (30, 50 or 70 psi)	
	 <i>SunPumps</i> PCA30-M1D		

Solar-Stream can supply PV modules and mounts, controllers, float switches and pumps. You may also require: a PV mounting pole, wire from array to controller and controller to pump (well wire), a pump drop pipe, safety rope and miscellaneous plumbing fittings. Most of these can be obtained from your local hardware store or plumbing supply house. Feel free to call or email if you have questions

PRICING

Pumps: Aquatec 50, 100 or 150 foot \$150

Pumps ship with manual, double shrink splice kit and a 3/4" brass discharge fitting. Shipping cost is \$20.

Controller: PCA30-M1D \$250 plus \$10 shipping

PV Modules (approximate – please call): 50W \$350, 80W \$500 Mount \$150 plus shipping

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